

SAKVARELIDZE, L.A.

Heighten the organizational work in lowering the incidence of and
eradicating infectious diseases. Zhur.mikrobiol., epid.i immun.
32 no.12:3-8 D '61. (MIRA 15:11)

(COMMUNICABLE DISEASES--PREVENTION)

RIZOL', A.I., SAKVARELIDZE, L.G., UTEVSKIY, L.M.

Nature of the temper brittleness of steel. Dokl. AN SSSR 105 no.2:
268-270 '55. (MLRA 9:3)

1. Institut metallovedeniaya i fiziki metallov TSentral'nogo
nauchno-issledovatel'skogo instituta chernoy metallurgii. Pred-
stavleno akademikom G.V. Kurdyumovym.
(Steel--Brittleness)

SARVARELIKZE, L.G.

Category : USSR/Solid State Physics - Systems

E-4

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3781

Author : Tavadze, Sakvarelkze

Title : Structure and Certain Properties of Copper-Arsenic Alloys

Orig Pub : Tr. In-ta metalli i gorn. dela AN GruzSSR, 1956, 7, 59-72

Abstract : A technique for smelting an arsenic bronze was developed and a study was made of the structure and of certain of its properties with an As content up to 10%. The solubility limit of As in Cu was established. The strength and plastic indices increase with increased As content, and the electric resistivity and coefficient of linear shrinkage diminish. The coefficient of expansion does not experience any changes whatever.

Card : 1/1

Sakvarelidze, L.G.

AUTHORS: Sakvarelidze, L.G. and Utevskiy, L.M.

70-5-25/31

TITLE: On Methods of Investigating the Structures and Phase Compositions of Grain Boundaries (K metodike issledovaniya struktury i fazovogo sostava granits zeren)

PERIODICAL: Kristallografiya, 1957, Vol.2, No.5, pp. 695-699 (USSR)

ABSTRACT: A combined electron-diffraction electron microscope technique for examining material in the boundaries between grains in iron alloys is described. By etching a steel for 1-5 min. in Popov's etch, the matrix material can be removed for a depth of 0.2 - 0.4 μ leaving the less soluble boundary phase standing proud of the surface in ridges. If the electron beam is then inclined to the surface at a glancing angle of 1° , then a satisfactory electron diffraction picture can be obtained even if the boundary material has only 10^{-4} to 10^{-3} of the total volume of the specimen. For example, cementite, occupying only 0.4% of the specimen volume in 0.035% carbon steel, can be detected. By using the X-ray fluorescent radiation excited the elements present in grain boundaries and they can be detected. Lines of a face-centred cubic phase ($a = 3.62 \pm 0.01$ A) found by some authors in electronograms of annealed specimens of various low-carbon steels have been attributed to austenite.

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70-5-25/31

On Methods of Investigating the Structures and Phase Compositions of Grain Boundaries.

The authors have tested, with the above technique, alloys of iron with 0.05% to 2% of Mn, Ni, Cr, Mo and up to 0.01% P, C or Sn after annealing or tempering at 800 °C and found no sign of "austenite". Nor did austenite appear after cementation or nitriding these alloys, but only after the addition of less than 0.1% Cu. The copper layer seems to be deposited on commercial steels while etching is in progress and comes from the iron of technical quality. If the Cu is deposited on the anode, its period is 3.65 A and if on the cathode its period is 3.62 A. A series of chrome-manganese and chrome-nickel steels, some with very low carbon content, and possessing reversible tempering brittleness, were examined. The study confirmed that brittle fracture of steels in the condition of tempering brittleness proceeds along the grain boundaries. This is shown from electron micrographs, the grain boundary particles being shown to be Fe_3C and Cr_7C_3 . There are 7 plates and 5 references, 3 of

which are Slavic.

ASSOCIATION: TsNIICHERMET

SUBMITTED: April, 22, 1957.

AVAILABLE: Library of Congress

SOV/120-58-4-11/30

AUTHORS: Orlov, L. G., Bakvarolidze, L. G., Utevskiy, L. M.

TITLE: Local X-Ray Analysis by Photographing [Taking spectrogram of] Reflected [X-Rays] (Lokal'nyy rentgenospektral'nyy analiz pri elektronograficheskoy s"yemke "na otrazheniye")

PERIODICAL: Priory i tekhnika eksperimenta, 1958, Nr 4, pp 61-62 (USSR)

ABSTRACT: A method is described for the analysis of the chemical composition of very thin surface layers. Simultaneously with this the structural phase pattern may be obtained "by reflection" in the EM-4 electronograph, using a specially designed spectral camera. The X-ray radiation which appears when an electron beam grazes the surface of the specimen is studied. In electron diffraction studies "by reflection" the diffraction pattern is produced by a surface layer about 10^{-6} cm thick. The X-ray radiation which results during this process may be used for the X-ray analysis of the chemical composition of the surface of a specimen under investigation. The geometrical conditions in the "by reflection" case (grazing electron beam) make it possible to carry

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SOV/120-58-4-11/30

Local X-Ray Analysis by Photographing [Taking Spectrogram of] Reflected [X-Rays]

out not only a general but also a local analysis of the structural components of the specimen for various states of its surface. The chamber used for this purpose is shown in Fig.1. The X-ray spectrum is analysed by a fixed calcite crystal. The method has been used to study changes in the chemical composition of surface layers of ferrite and various kinds of steel. There are 2 figures and 9 references, of which 5 are Soviet and 4 English.

ASSOCIATION: Institut metallovedeniya i fiziki metallov TsNIIChermet
(Institute of Metallography and Physics of Metals of
TsNIIChermet)

SUBMITTED: October 25, 1957.

Card 2/2

SOV/137 58 8-17776

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 226 (USSR)

AUTHORS: Orlov, L. G., Sakvarelidze, L. G., Ulevskiy, L. M.

TITLE: A Study of the Surface Layers of Ferrite Grains in Steel (Izucheniye poverkhnostnykh sloev zeren ferrita v stali)

PERIODICAL: Sb. tr. In-t metallov, i fiz. metallov Tsent. n.-i. in-ta chernoy metallurgii, 1958, Vol 5, pp 287-293

ABSTRACT: A presentation of certain data obtained during studies on surface phenomena in Fe alloys and low-carbon steel performed by means of electron-diffraction study and electron microscopy. It established that the surface layers of ferrite grains differ from their central regions only with regard to their chemical composition and not in their phase composition. After high tempering or annealing, no austenite interlayers were observed in Fe or in structural steels. Statements made by other researchers to the effect that such layers are present are erroneous and were, apparently, caused by the presence of Cu impurities which produce their own diffraction patterns upon the electron-diffraction picture. T.F. 1. Iron alloys--Surface properties 2. Steel alloys--Surface properties 3. Grains (Metallurgy)--Analysis 4. Electron diffraction analysis 5. Electron microscopes

Card 1/1

SAKVARELIDZE, L.G.; TAVADZE, F.N.

Effect of thermomechanical treatment on metal susceptibility
to temper brittleness. Trudy Inst.met. AN Gruz. SSR 12:159-165
'62. (MIRA 15:12)

(Alloys—Brittleness) (Tempering)

TAVADZE, F.N.; SAKVARELIDZE, L.G.

Electron microscopy and electronography of alloys on a pure iron
base. Trudy Inst.met. AN Gruz. SSR 12:167-172 '62.

(MIRA 15:12)

(Iron alloys--Metallography) (Electron microscopy)

L 07806-67 EMT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AR6017483

SOURCE CODE: UR/0137/66/000/001/V021/V022

AUTHOR: Tavadze, F. N.; Bayramashvili, I. A.; Sakvarelidze, L. G.; Metreveli, V. Sh.

TITLE: Zone refining of iron 27

SOURCE: Ref. zh. Metallurgiya, Abs. 1V158

22
B

REF SOURCE: Tr. Gruz. in-t metallurgii, v. 14, 1965, 123-127

TOPIC TAGS: zone refining, carbonyl iron, metal purification

ABSTRACT: Data are given from experiments on zone refining of two iron ingots: the first of Armco iron and the second of carbonyl iron. The first specimen was purified in an argon atmosphere on a copper hearth at a rate of 4 cm/hr. The second was purified at the same rate in a helium atmosphere on a lime hearth. It was found that zone refining may be done successfully on a hearth made from a mixture of calcium and magnesium oxides (5% MgO). Frank-Read sources at all stages of development were observed in the iron. Horizontal zone refining produces perfect crystals of iron including perfect single crystals. Purification results after nine passes on both specimens were as follows (the numerator indicates % in the initial material, the denominator -- % after zone refining in the head of the ingot): first specimen Si 0.17/0.002, P 0.007/0.003, S 0.028/0.007, C 0.017/0.009, Mn 0.13/0.025, Cu 0.16/0.09. Second specimen Si 0.0001/none, Mn 0.00005/None, Ni 0.02/0.007, C 0.011/0.006. 10 illustrations, 2 tables, bibliography of 5 titles. A. Pokhvisnev. [Translation of abstract]

SUB CODE: 11, 13

Card 1/1 MC

UDC: 660.181.4-492

L 0683-87 EWP(C)/EWP(W)/EWP(L)/EWP(TW) LDP(L) JD/TW
ACC NR: AR6020944 SOURCE CODE: UR/0137/66/000/002/I016/I016

AUTHOR: Tavadze, F. N.; Sakvarelidze, L. G.; Zoidze, N. A. 46
B

TITLE: Tempering of deformed martensite

SOURCE: Ref. zh. Metallurg, Abs. 21104

REF SOURCE: Tr. Gruz. in-t metallurgii, v. 14, 1965, 137-144

TOPIC TAGS: plastic deformation, martensite steel / U10 steel, U8 steel, 30 steel

TRANSLATION: The influence of plastic deformation on decomposition kinetics after quenching was studied in U10, U8, and 30 steels by means of measuring thermal emf and internal friction. A calculation of the degree of decomposition of deformed martensite after low temperature tempering (60-220°C) and the determination of the activation energy showed that the latter amounted to 27 Kcal/mol, just as for general cases of tempering, which implied the invariance of the nature of tempering. For the same degree of decomposition, the speed of decomposition was higher in deformed martensite while the damping of the speed proceeded faster than in the undeformed. It is expected that the increase of strength at room temperature of deformed martensite is associated with the precipitation of a large amount of small particles on dislocations, which are blocked by them, while the maintenance of strength to high temperatures is

UDC: 669.14.017.3:669.112.227.34

Card 1/2

1. C4682-67

ACC NR: AR6020944

associated with grain size fineness and the spheroidization of particles which become more effective barriers to dislocation motion than flat particles. I. Tulupova.

SUB CODE: 11

Card 2/2 fv

SAKVARELIDZE, M. A.

"The Problem of the Psychopathologic Disturbance of the Systematic Activity of the Spinal Cord." Cand Med Sci, Inst of Psychology, Acad Sci Georgian SSR, Tbilisi, 1953. (RZhBiol, No 6, Nov 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (11)

SO: Sum. No. 521, 2 Jun 55

SAKVARELIDZE, M.A.

Problem of certainty in delirious states. Trudy Inst. psikh. AN Gruz.
SSR 11:377-391 '57. (MIRA 12:3)
(Delirium) (Belief and doubt)

SAKVARELIDZE, M.A.; NADIRASHVILI, Sh.A.; MCHEDLISHVILI, G.N.

Bibliography of works of the D.N. Uznadze Institute of Psychology of
the Academy of Sciences of the Georgian Socialist Soviet Republic.

Trudy Inst.psikhol. AN Gruz. SSR 11:413-451 '57. (MIRA 12:3)

(Georgia--Psychology--Bibliography)

(Bibliography--Georgia--Psychology)

SAKVARELIDZE, M. A.

Peculiarities in the generalization of attitude in delirious states.
Trudy Inst. psikhol. AN Gruz. SSR 12:135-144 '60. (MIRA 13:11)
(Attitude (Psychology))

SAKVARELIDZE, M.A.

Peculiarities of the generalization of fixated set in a state of
delirium. Eksp.issl.po psikhol.ust. 2:381-386 '63. (MIRA 16:12)

*

SAKVARELIDZE, M.A.

Living through the meaning of the delirium. Trudy Inst. psikhol.
AN Gruz.SSR 14:163-173 '63. (MIRA 18:4)

SAKVARELIDZE, Marine Andreyevna

[Materials on the psychopathology of delirium] [Materialy
k psikhopatologii breba. Tbilisi, Metsniereba] 1965. 91 p.
[In Georgian] (MIRA 18:10)

SAKVARELIDZE, M.A.

Peculiarities of fixated set in diseases of the frontal lobes. ~~Resp.~~
issl. po psikhol. ust. 1:569-581 '58. (MIRA 13:12)
(Attitude (Psychology)) (Brain—Diseases)
(Hallucinations and illusions)

SAKVARELIDZE, P.V.

USSR/General Problems. Methodology. History. Scientific A
Institutions and Conferences. Instruction.
Questions Concerning Bibliography. and Scien-
tific Documentation

Abs Jour : Ref Zhur-Khimiya, No 3, 1958, 6841

Author : P. V. Sakvarelidze

Inst :

Title : Canned Food Industry of Georgia

Orig Pub : Konservn. i ovoshchsush. prom-st', 1957, No 10,
31-32

Abstract : A sketch of development.

Card 1/1

SAKVARELIDZE, S.E.

[illegible]

Dissertation for degree of
Doctor Medical Sciences

D

SAKVARELIDZE, S. E.

22655 Sakvarelidze, S. E. Izmeneniye Soderzhaniya Zhira Pri Golodanii
V Nadpochechnike, Pecheni, Semennike I yaichnike Krolika. Trudy (Tbilis.
Gos. Med. In-T), T. V, 1948, S. 31-38----NA Gruz. Yaz. -- Resyume NA
Rus. Yaz.---Bibliogr: S. 36

So: Letopis', No. 30, 1949

SAKVARELIDZE, Semen Eliazarovich

[Histology] [Gistologია. Tbilisi, Gos.izd-vo "TSodna"]
Pt.2. 1963. 246 p. [In Georgian] (MIRA 17:4)

SAKVARELIDZE, S. V., Candidate Med Sci (diss)-- "Intermediate medical training in Georgia". Tbilisi, 1959. 24 pp (Tbilisi State Med Inst), 200 copies (KL, NO 24, 1959, 152)

TAVADZE, F. N.; SAKVARELIDZE, T. N.; ABESADZE, TS. N.; DVALI, T. A.

Making iron in ancient Georgia by bushelling. Trudy Inst.
met. AN Gruz. SSR 11:95-108 '61. (MIRA 14:10)
(Georgia--Wrought iron)

SAKVARELIDZE, V.I.

Work of the Republic Stomatological Polyclinic of the Georgian S.S.R.
Stomatologia 41 no.4:82 J1-Ag '62. (MIRA 15:9)

1. Iz Tbilisskoy respublikanskoy stomatologicheskoy polikliniki
(glavnyy vrach V.I.Sakvarelidze) Ministerstva zdravookhraneniya
Gruzinskoy SSR.

(GEORGIA--STOMATOLOGY)

SAKWA, Wacław

Effect of preliminary mechanical treatment on the graphitization
of black heart malleable cast iron. Przegl odlew 14 no.10:
281-285 0 '64.

SAKWA, WACŁAW
5569* Modified Malleable Cast Iron, Modyfikowane żeliwo
ciągliwe. (Polish). Wacław Sakwa. Wiadomości Hutnicze, v.
10, no. 12, Dec. 1954, pages 646-648.
Methods for reducing heating cycle; ferritic and pearlitic iron
obtained from cupolas; heat treatment; structure and strength.
Graphs, tables. 4 ref.

[Handwritten signature]
BF

Sakwa, Wacław

✓ Influence of tempering of white cast iron on tensile properties, hardness, and structure of pearlitic malleable cast iron. Mikolaj Dubowicki, Wacław Sakwa, and Stefan Pieprznik (Tech. Univ., Cracow, Poland). *Przegląd Odlewnictwa* 6, 97-103 (1956). — Tempering of white cast iron in oil decreases the tensile strength from approx. 36 to approx. 30 kg./sq. mm.; at the same time hardness is increased from approx. 500 to approx. 540 kg./sq. mm. The intermediate austenite structure decomp. into pearlite. By tempering the white cast iron before graphitizing heating, the time of the first stage of graphitizing heating can be greatly reduced (from 30 hrs. at 1000° to 12 hrs. at 950°). It was shown that tempering of white cast iron has a beneficial influence on the properties of pearlitic, malleable cast iron obtained by heating either in an elec. or a gas (industrial) oven. *P. J. Handal*

Metall

3

10/8m

Sakwa, Wacław

Heat-treatment of pearlitic malleable cast iron. Milota
Dubowicki, Wacław Sakwa, and Stefan Pieprzak (Tech.
Univ. Częstochowa, Poland). *Przegląd Odlewnictwa* 6,
268-67(1956).—The optimum conditions for hardening and

tempering of pearlitic malleable cast iron (I) in oil are given. Cast iron was melted in an open-hearth furnace; it was then treated in a 50-kg. ladle with Fe-Mn (contg. 72% Mn) and poured into sand molds. Some samples were hardened in oil and then annealed in a gas furnace (or elec. furnace). The mech. and metallographic investigations proved the following: optimum for heat-treatment was at 850° (prior to hardening) as it gave the highest hardness and a martensite structure with C inclusions. The highest tensile strength accompanied by a slight increase in elongation and hardness was obtained by tempering I at 650°. Ductility and structure of I were improved by tempering I at 750° for 2.5 hours.

F. J. Heudel

SAKWA W.

18 18 4
Sakwa W. Jackowski J. Annealing Malleable Cast Iron in Liquid
Mediums:

„Wytwarzanie żeliwa ciągliwego w ośrodkach ciekłych”. Przegląd
 Odlewnictwa. No. 4, 1957, pp. 93-99, 5 figs., 5 tabs.

Preliminary investigations on annealing malleable cast iron
 (pearlitic and ferritic) in liquid mediums (BaCl₂ and NaCl). The object
 of the investigations was a laboratory verification of the results
 obtained in the USA and in the USSR. The pearlitic malleable cast
 iron obtained after 11 hours annealing revealed $TS \geq 40 \text{ kg/mm}^2$ and
 elongation $a_2 \geq 5\%$, whereas the ferritic malleable cast iron after
 16 hours annealing showed $TS \geq 30 \text{ kg/mm}^2$ and elongation $a_2 \geq 11\%$.

SAKWA, WACLAW

18. 18.
11931* (Polish.) Annealing Malleable Cast Iron in Liquid Media. Wykazanie żeliwa ciągliwego w ośrodkach elektrycznych. Jerzy Jaskowski and Wacław Sakwa. Przegląd Odlewnictwa, v. 7, Apr. 1957, p. 93-96. *Just*
Annealing in BaCl₂ and NaCl media. Pearlitic malleable cast iron after 11 hrs. annealing had tensile strength above 40 kg. per mm.² and elongation above 5%. Ferritic malleable cast iron after 16 hrs. annealing showed tensile strength above 30 kg. per mm.² and elongation above 11%. *RG 2006*

SARKWA, W.

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POLISH TECHNICAL ABSTRACTS

Vol. 26, Nr. 2, 1957

6
4522

18

Dąbowski M., Salska W., Pieprznik S. Heat Treatment of Pearlitic Malleable Cast Iron

Abstract

"Otróbką cieplną perlitycznego żeliwa ciągliwego". Przegląd Odlewnictwa. No. 9, 1956, pp. 238-267, 28 figs., 13 tabs.

The aim of the investigation here described was to establish the properties of pearlitic malleable cast iron as influenced by temperature and time of heating before hardening, as also by tempering. Cast iron melted in an open hearth furnace with a steady charge was used for the investigations. Samples were formed mechanically in a sand mould and poured with cast iron treated in a 60 kg. ladle with ferro-manganese (72% Mn). Part of the samples were hardened in oil before annealing; another part was left as cast. Samples were annealed in an electric furnace and in an industrial gas furnace. After annealing in a gas furnace, samples were normalised. Heating for oil hardening and for tempering was carried out in an electric furnace to various temperatures and for various periods. Mechanical and metallographic investigations proved that: 1) A decrease of tensile strength and an increase of hardness numbers, accompanied by a lack of malleability; the heating temperature of 850°C.

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Heat Treatment of Pearlitic Malleable Cast Iron.

applied before hardening, proved effective giving the greatest hardness (about 80 H_c) and a martensite structure with temper carbon inclusions. 2) The highest tensile strength number, accompanied by a slight increase of elongation and hardness — as compared with corresponding properties before heat treatment — was obtained by tempering a hardened malleable cast iron at 650°C. A positive influence on ductility and structure was achieved by tempering a hardened malleable cast iron at 750°C. for 2 1/2 hours. Only slight influence was observed of initial cast iron hardening on the mechanical properties of malleable cast iron before annealing but after hardening and thermal improvement. On the other hand, a refining of grain was obtained, and in particular a temper carbon inclusion.

SAKWA, Wacław, doc., inz.

"Cast iron" by Heinz Ulrich Doliwa. Reviewed by Wacław
Sakwa. Przegl odlew 11 no.10:323 '61.

SAKWA, Wacław, doc., mgr., inz.

Constructions of steel ingot moulds. Wiad hutn 18 no. 2:38-40. F '62

DATE: 11/20/2010

Selection of construction material for pump rotors. Gaz woda
techn sanit 37 no.9:276-278 S '63.

04014, .

Celebration of the 15th anniversary of the Czestochowa Technical
University. Prace i odlew 14, no.8/9:273 Ag-3 '64.

SAKWA, Wacław; LESNIAK, Chryzant

Sintered carbides as foundry material. Przegl odlew 14 no.12:
330-333 D '64.

SAKYAK, I. I.

"Braking Properties of Induction Motors in the Case of Asymmetrical Stator Winding Connections." Cand Tech Sci, L'vov, Polytechnic Inst, Min Higher Education USSR, L'vov, 1954. (KL, No 2, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)

SO: SUM No. 556, 24 Jun 55

KORSHAK, V.V.; PETROV, A.D.; MATVEYEVA, N.G.; MIRONOV, V.F.; NIKITIN,
SAKYKH-ZADE, S.I.

High molecular weight compounds. Part 97. Polymerization and
copolymerization of certain silicon olefins. Zhur.ob.khim. 26
no.4:1209-1212 Ap '56. (MLRA 9:8)

1. Institut elementoorganicheskikh soyedineniy akademii nauk SSSR.
(Silane) (Polymers and polymerization)

SAKYN', A. V. ; MILLER, S. V. ; BESSONOVA, A. P; ELUSHKOV, L. A.; GORLANOVA, N. A.;
GOTLIB, YE. V.; STONIN-BAKHUREV, I. M.; FILATOVA, A. S. ; SURIS, V. G.; GRUKUS, G. D.

" Sanitary labor conditions in the electrolytic shops
of aluminum plants and the essential health-protection
measures."

report submitted at the 13th All-Union Congress of Hygienists,
Epidemiologists and Infectionists, 1959.

POPOVA, O.S.; SAKZHAROVSKIY, A.T.

Effect of cathode-reduced hydrogen on the properties of metals.
Dokl. AN SSSR 136 no. 2:654-656 Ja '61. (MIRA 14:2)

1. Institut fizicheskoy khimii AN SSSR. Predstavleno akademikom
P.A. Rebinderom.
(Hydrogen) (Metals—Hydrogen content)

SAL', A. O.

"Approximate Calculation of the range of Average
Temperature Alterations in Bodies with Volumetric
Inner Sources of Periodically Emitting Heat."

Report submitted for the Conference on Heat and Mass
Transfer, Minsk, BSSR, June 1961.

SALA, A.; BURANOWSKI, T.

Airplanes, missiles. p. 39.

WOJSKOWY PRZEBUD LONICZY. (Dowodstwo Wojsk Lotniczych) Warszawa, Poland.
Vol. 11, no. 9, Sept. 1958.

Monthly list of East European Accessions (EEAI) LC, Vol. 8, no. 7, July 1959.
Encl.

19(2)

POL/44-59-10-8/20

AUTHORS:

Burakowski, T., and Sala, A., Master Engineers

TITLE:


Rockets and Anti Aircraft Defense

PERIODICAL:

Wojskowy przegląd lotniczy, 1959, Nr 10, pp 39-53 (POLAND)

ABSTRACT:

Practically, there are no weapons available at present to successfully defend a certain object from long range ballistic rockets. A remote controlled anti-missile would be such a weapon, but development of such a projectile is so complicated that nothing useful has been accomplished by any country so far. An anti-missile would have to be a step-missile, equipped with a rocket drive propulsion in its first step permitting a speed of above 1,000 m/sec within a short time after take-off. Liquid fuel will be applicable. The second step will also be driven by a rocket propulsion; moreover, at high altitudes with low density of atmosphere it would have to adjust the course of flight too. As the attacking ballistic rocket as well as the anti-missile will move against each other at very high speeds (approximately 10,000 m/sec), the possibility of hitting the ballistic rocket is almost impossible,



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Rockets and Anti Aircraft Defense


as minor errors in guidance would mean position deviations up to 300 m (according to the latest stage of development of remote control). It will, therefore, be necessary to install an additional third step in the missile to self-guide the projectile to the target. The application of infra red rays for this purpose seems to be the best means for this self-guiding, especially considering the fact that high temperatures will prevail on the front part of the flying projectile. Diagram 28 shows the three steps of an anti-missile as projected. The application of an atomic blast in order to destroy the enemy rocket does not seem to be practical, as the material of the ballistic rocket would withstand the created heat and the radioactivity, and to attain a maximum force of explosion, an nuclear load equal to 20,000 tons of TNT would be necessary to provide a sure success within a distance of 300 m. Classical explosives will do it better, being much cheaper. Diagram 29 demonstrates six various types of possible anti-missiles. In all six instances it was supposed that the weight of the third missile-step would be 1% of the total weight of the projectile,

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Rockets and Anti Aircraft Defense

POL/44-59-10-8/20

that the propulsion efficiency would be 500 kg sec/kg, and that the final speed of the missile would reach 6,000 m/sec. There are 10 diagrams, 1 table and 3 Polish references



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SALA, A. ; BURAKOWSKI, T.

Innercontinental ballistic missiles. (To be contd.) p. 30

WOJSKOWY PRZEGLAD LOTNICZY. (Dowództwo Wojsk Lotniczych) Warszawa, Poland
Vol. 12, no. 4, Apr. 1959

Monthly List of East European Accessions (EEA1) IC Vol. 8, no. 8, August, 1959

Incl.

SALA, A.; BURAKOWSKI, T.

Intercontinental ballistic missiles. (To be contd.) p. 38.

WOJSKOWY PRZEGLAD LOTNICZY. (Dowodztwo Wojsk Lotniczych) Warszawa, Poland,
Vol. 12, no. 5, May 1959

Monthly List of East European Accessions (EEAI) LC Vol. 8, no. 8, August, 1959

Uncl.

P/044/60/008/004/007/012

AUTHORS: Burakowski, T.; Sala, A.; Masters of Graduate Engineering

TITLE: Air to Air Rockets and Guided Missiles

PERIODICAL: Wojskowy Przegląd Lotniczy, 1960, Vol. 8, No. 4, pp. 53 - 63

TEXT: The efficiency of air raid defense by rockets and guided missiles launched from fighters in comparison with a surface to air defense is analyzed. The merits and demerits of both systems are listed (Table 1). An article by H.H. Porter published on pages 24-29 of the July 1953 issue of the Aeronautical Engineering Review is mentioned. The armament of several Western fighters is described and that of the Swedish SAAB-32A fighter shown (Photograph 1). The number of gun-equipped and rocket-equipped fighters needed for destruction of an attacking force of 50 bombers is graphically shown (Diagrams 2 and 3). It amounts to 700 and 400 respectively, while only 80 fighters equipped with guided missiles would achieve the same effect. Ways of attack with rocket-equipped fighters are discussed and shown (Diagram 4). The difference in distance of attack with unguided and guided missiles is shown (Diagram 5). There are 4 diagrams, 1 photograph and 1 table.

✓

Card 1/1

2(10),26(5)

POL/5-60-10-10/41

AUTHOR: Burakowski, T., Master of Engineering
Sala, A., Master of Engineering

TITLE: Air Breathing ¹³Missiles With Uniflow Engines, Types
of Propulsion of Guided and Non-Guided Air Breathing
Missiles

PERIODICAL: Przegląd Techniczny, 1960, Nr 10, pp 17-20

ABSTRACT: This is a supplement to the article titled "Technika
Rakietowa we Współczesnym Uzbrojeniu" (Rocket Engi-
neering in Contemporary Armament) published in the
Polish periodical "Przegląd Techniczny", Nr 8,9, and
10 1959. This article deals with uniflow and rocket ²³
engine missiles. The authors describe in general terms
the types of propulsion in guided and non-guided miss-
iles. The classification of rocket and uniflow engines
is shown in 2 figures. The authors distinguish solid,
solid-liquid and liquid fuel rocket engines, whereat ✓

Card 1/2

P/044/60/000/010/001/002
A105/A126

AUTHORS: Burakowski, I. and Sala, A., Masters of Engineering

TITLE: Rockets, bombs and guided air-to-surface weapons

PERIODICAL: Wojskowy Przegląd Lotniczy, no. 10, 1960, 51 - 62

TEXT: The authors give a historical review of the development of air-to-surface weapons and their use during World War II and describe some of them. The authors conclude with the statement that rockets are more advantageous than bombs because of their long range, speed and aiming accuracy. There are 7 figures.

Card 1/1

BURAKOWSKI, T., mgr., inż.; SALA, A., mgr., inż.

Rockets, bombs and guided missiles, class air-earth. (To be
contd). Wojsk przegl 13 no.10:51-62 0 '60.

BURAKOWSKI, T., mgr., inz.; SALA, A., mgr., inz.

Rockets, bombs and guided missiles, class air - earth. (To be
contd.) Wojak przegl 13 no. 11:33-47 N '60.

BURAKOWSKI, Tadeusz, mgr.,inz.; SALA, Aleksander, mgr.,inz.

Propulsion of guided and non-guided jet missiles with
uniflow engines. Przegl techn 31 no.10:17-20 '60.

BURAKOWSKI, T., mgr., inz; SALA, A., mgr., inz.

Missiles complementing military rockets. techn 81 no.11:19-22
Mr '60.

BURAKOWSKI, T., mgr.,inz.; SALA, A., mgr.inz.

Special types of missiles with uniflow engines. Przegl techn 81 no.12:
15-20 Mr '60.

SALA, Aleksander, mgr. inz.

Noctovision or seeing in the dark. Horyz techn
no.6:11-13. '62.

P/044/63/000/001/002/002
E192/E382

AUTHORS: Burakowski, T. and Sala, A., Master Engineers

TITLE: Control of rocket missiles

PERIODICAL: Wojskowy przegląd lotniczy, no. 1, 1963, 34 - 48

TEXT: The known control systems of rocket missiles are based on the following three methods: homing; programmed control and remote control. The homing can be either passive, semi-active or active; in the first case, the control is effected by using the natural radiation of the object pursued; in the second case, the object is irradiated by a transmitter situated outside the missile, while the third variation relies on the reflection of the waves from the object, which are sent by the missile itself. The programmed control includes the following systems: automatic; astronavigational; radio-astronavigational; radionavigational; inertial; gravitational and topographic. Automatic control relies on determining and correcting deviations from a prescribed flight path. This is a comparatively early type of control and was used originally in V-1 and V-2 German rockets. Astronavigational control depends on determining the position of the missile with

Card 1/2

Control of rocket missiles

P/044/63/000/001/002/002
E192/E382

respect to some brighter stars. The radio-astronautical method relies on evaluating the position of the missile with respect to some fixed stars but it employs radio waves emitted by these stars. Radionavigational control depends on a number of fixed stations transmitting pulses or continuous waves; a hyperbolic grid is used for this purpose. Inertial systems rely on the continuous measurement of acceleration of the missile along two or three of its axes by means of inertia-less accelerometers. In the gravitational method use is made of measuring the angle between the vertical and a certain reference plane. The topographic method relies on continuously comparing (by electronic means) the relief of the terrain over which the missile is flying with a previously prepared radar map of the region. The article is to be continued. There are 10 figures.

Card 2/2

P/044/63/000/002/001/005
E202/E192

AUTHORS: Burakowski, T., Engineer, and Sala, A., Engineer

TITLE: Guidance of rocket missiles

PERIODICAL: Woksjowy przegląd lotniczy, no.2, 1963, 36-47

TEXT: This paper completes a series of articles dealing with interceptor systems. It is a popular review of the methods of surface-to-air guidance and the historical development of the methods used in homing a missile on a target. Fundamental design of the interceptor system employing the units determining the position of the moving target, the position of the intercepting missile, the transmitter in contact with the missile and the evaluating unit are briefly described. Various methods of control by means of optical command, beam-riding guidance, track-command system and semi-active radar are briefly described. Some details of the beam-riding method are given in which the position of the missile is measured in terms of its distance from the geometrical axis of the transmitting radome. Various missiles, including the American Sparrow I and Terrier, Swiss Oerlikon and British Sea-Slug,

Card 1/2

Guidance of rocket missiles

P/044/63/000/002/001/005
E202/E192

working on the principle of beam-riding, are briefly discussed, together with typical semi-active radar and homing methods. The four basic phases of guidance, namely, the starting, calibrating, fundamental and final phases, are also described. The article concludes with a brief discussion of the steering systems of the basic supersonic missile types. There are 7 figures.

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L 13218-63 EWT(d)/EWT(1)/FS(b)/FBD/EDS/EED-2/EEO-2/ES(t)-2 AEDC/AFFTC/
 ASD/AFMDC/ESD-3/APGC/SSD Pg-4/Pk-4/Pl-4/Pn-4/ P/044/63/000/005/001/002
 Po-4/Pq-4 BC/CC/IJP(C) 93
 AUTHOR: Burakowski, T., Master of Engineering
 Sala, A., Master of Engineering

TITLE: Missile self-guidance based on seeking the infrared

PERIODICAL: Wojskowy Przegląd Lotniczy, v. 17, no. 5, 1963, 22-36

TEXT: When an airplane flies at a speed of 0.8 Mach at 10,000 meters altitude, the temperature of its walls reaches 250°K. At three times the speed, the temperature doubles and the amount of emitted infrared energy increases 16 times, while the intensity of radiation increases 32 times in the wavelength of maximum emission. This means, that theoretically a plane can be detected from a much greater distance as its velocity increases. The actual range is somewhat shorter depending on absorption in the atmosphere and on the sensitivity of the detecting apparatus. These phenomena are utilized in missile guidance with infrared, radar or acoustic waves. The self-guidance system can be: 1) active, if the transmitter of the detection waves is installed in the missile; 2) semi-active, if this transmitter is located outside the missile; in both cases the waves reflected from the target are picked up by the receiver
 Card 1/7

L 13218-63

P/044/63/000/005/001/002

Missile self-guidance...

installed in the missile. 3) The self-guidance system can also be passive, if the target itself acts as transmitter and the missile has a receiver only. In guidance systems based on seeking the infrared the target and the direction of its motion are detected by thermal range finders. Determining the actual position of the target and leading the missile into collision with it is done by the nose cone of the missile. Its operation is coordinated with the functions of several other components of guidance system: the missile's own position must be determined, then both sets of data, target and missile, are fed into a computer and from there into a signal generating circuit. The signal actuates a servo-mechanism which in turn steers the motion of the missile. The guidance of missiles is enormously complicated by the fact that the target too is in motion. Thus, the missile must be steered along a curved path which at every point is tangent to the straight line between missile and target. There are many disadvantages to curvilinear motion, namely: 1) large inertial forces and lateral accelerations require stronger and heavier missile structure, 2) longer travel distance and travel time - more powerful engines and driving gear. In order to minimize these difficulties, the

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L 13218-63

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Missile self-guidance...

guidance system is devised so, that the missile course approximates a straight line. Depending on the speed and the direction of the target, the missile course is continually adjusted to maintain a constant angle of approach. In effect, the missile anticipates the point of collision and veers toward it. The only difference between infrared and other types of sensing is in the method of determining the line of vision, i.e. the straight line between missile and target. With infrared, like with thermal range finding, the detection and guidance apparatus is located in the nose cone of the missile. The simplest, classical such device is the "Hamburg" nose cone which has a photoelectric infrared detector placed in the focus of a parabolic mirror. A coordinating disc between the mirror and the detector is mounted on a common shaft with a commutator. During every one revolution of this entire armature, a set of relays is actuated in four steps and, through a series of circuits, the position of the horizontal and vertical controls is established. The problems of infrared technique can be classified into those of external and those of internal character. The first type of problems consists in discriminating between radiation coming from the target and that coming from other sources, like the sun during the day, or the moon during the night,

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L 13216-63

Missile self-guidance...

P/044/63/000/005/001/002

radiation dispersed in the atmosphere, or reflected by clouds. All this so called noise must be minimized at the detecting receiver. The problem is solved by means of slits in the coordinator or preferably a separate grid which modulates only those waves which are emitted or reflected by the target. This is so, because the image of the target formed by the concave parabolic mirror is smaller than the apertures in the grid. This grid is located in the focal plane of the mirror and is made to move in a certain way in order to produce modulations. Radiation from objects whose images are larger than openings in the grid, such as coming from clouds for instance, will pass through the grid unmodulated and can be eliminated subsequently by means of isolation transformers. The second type of problems has to do with the construction of the nose cone and the fact that the missile is moving in the atmosphere. This requires a shield in the shape of a cone, pyramid or hemisphere with maximum transparency and minimum refraction. The detectors, also located at the focus of the mirror, are equipped with amplifiers each, or with one common amplifier, or with a vidicon. However, the infrared rays pass through a lens first which corrects for the spherical aberration of the mirror.

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L 13218-63

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Missile self-guidance...

The Germans were among the first to develop infrared-seeking guided missiles during World War II. However, such nose cone designs as "Hamburg" (10 kilograms weight, 3 kilometers range) or "Madrid" (about 5 kilograms weight, 2-3 kilometers range) have not found combat application. After the war, work on missile development has been done in Soviet Russia, the United States, Great Britain and France, recently also in Italy and in Switzerland. Missiles are for use in combat against manned or unmanned aircraft and ballistic rockets. They fall into three categories: 1) air-to-air, 2) ground-to-air, and 3) water-to-air. One of the earliest water-to-air missiles based on the infrared type of self-guidance was the "Lark" developed in the United States for sea-borne anti-aircraft duty. Since 1951 however, it has become obsolete and it is now retired from service. The modern ground-to-air and water-to-air missiles are either self-guided or remote-guided; the latter method is not always feasible or adequate for the required accuracy. For example, remote guidance is quite powerless, if the enemy plane flies at low altitude; because of the earth curvature such target can be detected by radar from a small distance only. On the other extreme, when enemy planes fly at very high altitudes, the error inherent in remote-guidance, being proportional to the distance, renders this method useless. In such case, the combined remote- and self-guidance

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Missile self-guidance...

system is used: the first stage of the flight after firing is conducted by remote-guidance; then, when approaching the target, the mission is completed by self-guidance. With this arrangement the accuracy of guidance is made independent of the distance between missile and control station. The missile for combatting ballistic rockets is similar in structure to the anti-aircraft missile, but has more power, longer range and greater speed; it belongs to the ground-to-air category. Air-to-air missiles are now predominantly self-guided and the infrared-seeking method is the most frequently used. Fighter planes are a good example of their application: the missile nose cones operate throughout the duration of the airplane's flight, continuously scanning the area assigned to them; then, as soon as a source of infrared radiation is detected, the pilot receives this information automatically. The missile, fired by the release of a push-button, will hit the target through self-guidance, thus relieving the crew of the job of guiding it by remote control. Such air-to-air self-guided missiles, built after World War II, are in the possession of the Soviet Union, the United States ("Sidewinder", "Falcon" in a few versions), Great Britain ("Firestreak"), France ("Matra M-510") and

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L 13218-63

P/044/63/000/005/001/002 0

Missile self-guidance...

Italy ("C-7"). Certain ground or seaborne targets, like smoking chimneys, also emit infrared radiation which makes their bombardment by the infrared-seeking method possible. The American "Feli" and "Daw" propellerless bombs were designed for anti-submarine combat. This method does not, however, appear suitable for missiles of the ground-to-ground category, except for short-range combat duty against tanks and other armored vehicles. The American "Navaho" was of this type, but it could be guided only during the very last stage of the long distance flight and it was consequently discontinued. In the future, infrared-seeking self-guidance will probably be used in air-to-ground combat and over cosmic-space distances. The reliability of present infrared-seeking self-guided missiles varies from 70% to 90% or less under severe atmospheric conditions. It must be understood here, that the effectiveness of the missile is not necessarily contingent upon its hitting the target; complete or at least partial destruction of the target may be accomplished by an explosion in its vicinity.

There are seven schematic diagrams and three pictures in the text. Eight bibliographic references are listed: three Polish (1,3,8), one French (2), three Russian (4,5,7) and one American (6).

Card 7/7

SALA, Aleksander, mgr inż.; SOSNOWSKI, Jozef, mgr

Temperature measurements based on the emission of infrared radiation. Przegl mech 23 no. 3:74-78 10 F '64.

1. Instytut Mechaniki Precyzyjnej, Warszawa.

P/0044/64/000/005/0066/0074

ACCESSION NR: AP4039352

AUTHOR: Sala, A. (Master engineer); Przygodzki, S. (Engineer)

TITLE: Proximity fuses

SOURCE: Wojskowy przeglad lotniczy, no. 5, 1964, 66-74

TOPIC TAGS: ammunition fuse, ordnance, materiel, munitions ammunition, missile, rocket, anti-aircraft artillery, ack-ack, infrared detection, infrared proximity fuse, optical proximity fuse, electrostatic proximity fuse, acoustic proximity fuse, magnetic proximity fuse

ABSTRACT: The article describes some of the modern fuses which are used to detonate projectiles and bombs. Passive IR fuses are being used exclusively today. IR proximity fuses have the advantage over other types of proximity fuses in that their operation is practically foolproof. These fuses can be utilized to a large extent against targets emitting intense IR rays. This type of target will primarily be aircraft and missiles. This means that this fuse is adaptable for use in ground-to-air, water-to-air, air-to-air missiles as well as in anti-missile missiles. They can also be used in medium and heavy AA fire. The optical fuse can be either active or passive. This type of fuse has not been extensively used because its use is

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ACCESSION NR: AP4039352

greatly dependent not only on light conditions but also upon atmospheric conditions. Electrostatic fuses are noted for their simple construction. Their defect is short operating range which, for all practical purposes, cannot be increased. Increasing the sensitivity will cause a premature setting-off on account of the nonuniform distribution of the electrical charges in the atmosphere. In addition, atmospheric conditions such as rain and fog have a deleterious effect on the operation of electrostatic fuses. The Germans developed a semi-active magnetic proximity fuse around 1930. An active magnetic fuse, creating its own magnetic field and functioning as the result of changes in this field caused by foreign bodies, is also feasible. The operation of this type of fuse is not dependent upon atmospheric conditions. In spite of this, the magnetic fuse has a number of drawbacks such as the complicated utilization of magnetic phenomena in practice. The acoustic fuse functions under the effect of noises created by a moving target. These came into existence during WWII. The acoustic fuse can presently fulfill a very limited role in knocking out airborne targets. This is due to the fact that aircraft and rockets are beginning to travel faster than sound. Under these conditions, the operation of the passive acoustic fuse depends upon the position of the fuse with respect to the target. If the fuse is before the target travelling at supersonic speed, it will generally not function. If it is off of the target, it will be actuated even at a long range. A further development of proximity fuses is largely dependent

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ACCESSION NR: AP4039352

upon three basic factors: (1) the design of improved and modern electronic elements; (2) research into the physical characteristics of potential targets and construction of effective detectors on the basis of this research; (3) utilization of other physical phenomena for the design of new types of proximity fuses, which may include pressure-activated and atomic radiation fuses. Orig. art. has: 6 figures.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 12Jun64

ENCL: 00

SUB CODE: WA

NO REF SOV: 004

OTHER: 015

Card 3/3

SALA, E.

Górný Z., Sala E. Influence of an Addition of Silicon and Iron on the Structure and Properties of Cu-Pb Alloys.

"Wpływ dodatków krzemenu i żelaza na strukturę i własności stopów Cu-Pb". (Prace Inst. Odlewn. No. 4/55), Warszawa, 1955, PWT, 8 pp., 12 figs., 12 tabs.

The existence of lead segregation in Cu-Pb alloys has long been known and there have been numerous attempts to counteract this effect. In addition to different technical treatments, various admixtures have been tried for reducing segregation. In the present tests the aim was to reduce segregation or even completely eliminate it by adding silicon and iron to the alloy. In the results obtained, segregation was not eliminated, but the Cu-Pb-Si alloy was found to be adequate for replacing tin-zinc and tin-zinc-lead alloys. The influence of iron, especially if more than 0.5 per cent is added was found to be harmful.

P/044/61/000/007/001/001
D002/D101

AUTHORS: Burakowski, T., Master Engineer, and Sala, A., Master Engineer

TITLE: Flight booster rockets

PERIODICAL: Wojskowy przegląd lotniczy, no. 7, 1961, 22-36

TEXT: The informative article comprises chapters on the uses of additional thrust systems in contemporary military aircraft, conventional methods of producing additional thrust in flight, design and efficiency of flight booster rockets, and a comparison of assisted take-off and flight booster rockets. Apart from western examples of appropriate equipment, Soviet WW II booster rockets "RD-1" and "RD-1KhZ" are mentioned. There are 8 figures and 11 references: 6 Soviet-bloc and 5 non-Soviet-bloc. The references to the English-language publications read as follows: Armstrong Siddeley "Snarler", Flight, no. 66, 6 Aug 1954, 176-180; D. Hurden, The development of the Armstrong Siddeley "Snarler" rocket motor, J. Brit. Interplanet. Soc., 14, Jul-Aug 1955, 215-229.

Card 1/1

BAHENSKY, Vladimir, inz.; SALA, Ivan, inz.

Regeneration of hardening salts containing barium chloride. Stroj
vyr 12 no.6:432 Je '64.

1. State Research Institute of Material Preservation, Prague.

SALA, I. - Vol. 3, no. 2, Feb. 1955. STROJIRENSKA VYROBA

Have you a correct temperature in furnaces? p. 68.

SO: Monthly list of East European Accessions, (HEAL), LC, Vol. 4, No. 9, Sept. 1955
Uncl.

SALA, I.

For Avoiding Damage Stemming from Overload of Protective Relays. (Energetics and Hydrological Engineering), #3:143:Mar. 55

9689: Determining the Carburizing Efficiency of Various Atmospheres. Stanovení usahlčovachio potencilam atmosfér. (Czech.) J. Zbořil and I. Šála. Strojirenetvi, v. 6, no. 5, May 1956, p. 327-330.

Principles and advantages of various methods. Description of device for testing various atmospheres. Relation between electrical resistance and C contents. Graphs, diagram, photograph, micrographs, 8 ref.

S/123/62/000/017/003/006
A052/A101

AUTHOR: Šála, Ivan

TITLE: The medium for the austenization heating of high-carbon steels without decarbonization

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 17, 1962, 19, abstract 17B101 ("Materiál. sb. 1960. Čast 1." Státní výzkumný ústav materiálu a technol. Praha, 1960, 83 - 95, Czech; summaries in Russian and English)

TEXT: The results of selecting the bath composition for heating for hardening 19421 tool steel (1.13 - 1.26% C, 1.02 - 1.11% Cr, 0.14 - 0.12% V) and 19422 tool steel (1.35 - 1.47% C, 1.61 - 1.63% Cr, 0.17 - 0.16% V) are described. The degree of decarbonization was determined by the layer chemical analysis. The application of a lead bath or of a bath consisting of 94% Al and 6% Si for heating steel to 840°C did not give any positive results, since the samples were subjected to decarbonization and oxidation. The heating in salt baths (NaCl, KCl and BaCl₂) also resulted in decarbonization of steel due to presence of various

Card 1/2

S/123/62/000/017/003/006
A052/A101

The medium for the austenization heating...

oxides in salts. A bath composed of chlorides with an addition of 8% NaCN lead to decarbonization already at short heatings. Similar results were achieved at heating in a bath containing 42% NaCl, 52% KCl and 6% dicyanodiamide. Attempts were made to use for heating baths containing SiC as a reducer. The decarbonization could not be prevented when using a bath containing 15% BaCl₂, 30% NaCl, 30% KCl, 20% Na₂CO₃ and 5% SiC. An increase of SiC content to 20% decreased the degree of decarbonization but did not prevent it. Positive results were reached in a bath containing 40% BaCl₂, 30% NaCl and 30% KCl. As a reducer 5% Si was added to the bath. In such a bath an hour's heating at 840°C did not cause any changes in the surface of the samples. After a 2 hours' heating a ferrite layer 0.01 mm deep formed on the surface. A positive effect of Si was evident already at its content of 0.25%.

M. Shapiro

[Abstracter's note: Complete translation]

Card 2/2

Z/032/60/010/012/009/009
E073/E335

AUTHOR: Šála, I., Engineer

TITLE: Application of Controlled Atmospheres in Engineering Works

PERIODICAL: Strojírenství, 1960, Vol. 10, No. 12,
pp. 950 - 952

TEXT: This is basically a summary of foreign practice. Equipment for developing exothermic developers of protective atmospheres are manufactured in Czechoslovakia in several sizes, mainly for use in continuous furnaces. Attention is drawn to the necessity of manufacturing equipment for exothermic generation of atmospheres with a high nitrogen content; such an atmosphere has a low CO content, is almost non-poisonous, it does not burn and there is no danger of explosion. It contains very few reactive components so that it has practically neutral behaviour. Equipment for endothermic evolution of protective atmospheres is at present in the process of development in Czechoslovakia. There is only a single Czech-produced installation in operation.

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Z/032/60/010/012/009/009
E073/E335

Application of Controlled Atmospheres in Engineering Works

[Abstractor's note: this is what is stated in the conclusions. However, in the body of the text it is stated that only a single endothermic generator is installed in Czechoslovakia and this is of foreign manufacture - Birlec, Great Britain.] The necessity is emphasised of making available to the Czech industry a sufficient quantity of such equipment for generating protective atmospheres, particularly, two-chamber equipment which is more reliable in service. For series-manufacture of components, continuous furnaces are the most economical and it is advisable that these should have a pre-chamber on the charging side. In view of the possible availability of natural gas, the author believes that furnaces should be designed which are gas-fired and the heat transmitted by means of radiation tubes. There is a lack of furnace space in Czechoslovakia for annealing austenitic steels with a gas-tight retort which can be operated with

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Z/032/60/010/012/009/009
E073/E335

Application of Controlled Atmospheres in Engineering Works

a high-quality atmosphere produced by decomposing ammonia.

There are 2 figures and 8 non-Czech references.

ASSOCIATION: SVÚMT, Prague

Card 3/3


Z/032/61/011/002/012/013
E073/E335

AUTHOR: Šála, I.

TITLE: Investigation of Layers with a High Resistance to
Seizing Produced by Sulphonitriding in Salt Baths

PERIODICAL: Strojírnoství, 1961, Vol. 11, No. 2, p. 154

TEXT: The report is devoted to sulphonitriding in the
temperature range 280 to 380 °C. Main attention is paid
to the layers produced in a bath with temperatures of about
380 °C. These newly proposed types of bath produce layers
with considerably better friction properties than those which
can be obtained with known baths. It was found that media
operating in the temperature range 200 to 400 °C do not present
any metallurgical or technological advantage.
1960, Prague: SVÚMT Z-60-839.



(Note: this is a complete translation)

Card 1/1

S/123/62/000/014/016/020
A004/A101

AUTHORS: Háek, Jiří, Šála, Ivan, Esterka, Bohumír, Pokorný, František
TITLE: Activation and cleaning of the surface of alloyed steel prior to nitriding
PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 14, 1962, 37, abstract 14B225P (Czechoslovakian patent, class 48d, 5, 18c, 3/25, No. 97555, 15.12.60)

TEXT: A method of cleaning and activating the surface of parts prior to nitriding is patented, which improves the nitriding process and the quality of the layer obtained on chrome-nickel austenitic (or any other alloyed) steel. The method consists of applying to the steel surface to be nitrified a thin hydride layer of any metal (titanium, zirconium, tungsten, chromium, etc.) or a mixture of metal hydrides and ammonium chlorate or carbonate in the form of a suspension in methanol. In heating the surface during the nitriding process, it is cleaned from oxides, activated and the process of atomic nitrogen saturation is facilitated and accelerated. Nitriding is taking place as usual by heating the part in an atmosphere containing atomic nitrogen. After 10 hours nitriding (including the prepara-

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Activation and cleaning of...

S/ 123/62/000/014/016/020
A004/A101

tion according to the patented method) the surface hardness attains magnitudes of HV 850 - 950.

B. Yakovlev

[Abstracter's note: Complete translation]

Card 2/2

AKA, T.

"Some Impressions from a Visit to a Steel Foundry in the USSR", P. 330,
(PRIPOLN OBLASTI, V. 1. 1, No. 11, November 1974, Warsaw, Poland)

SC: Monthly List of East European Acquisitions (EAL), IC, V. 1. 1, No. 3,
March 1975, Uncl.

SALA, Tadeusz, mgr., inż.; KLUSKA, S., mgr., inż.; SEKOWSKI, Kazimierz,
mgr., inż.

From the activities of the Foundry Institute. Przegl odlew
11 no.10:17-20 Biul Inform '61.

SALA, Tedeusz, mgr.,inz.; ULMAN, Zbigniew, inz.

An example of replacing steel by wear resistant cast iron.
Przeł odlew 11 no.12:365-367 '61.

SAIA, Tadeusz, mgr., inż.

External coolers for cast steel. Przegl odlew 12 no.3:89-91 Mr '62.

DATA, T-1000

problems of the production of cast steel of increased strength and
wearing resistance. Prizy gl'edov 1. no. 3/9:247-252 Ag-S 16A.

SALA, Zbigniew, mgr

Changes in the world zinc market. Rudy i metale 9 no.12:659-661
D '64.

SALABA, Josef, inz.

Control valve of minimum fuel pressure placed in front of nozzles.
Zapravodaj VZLU no. 5:15-18 '61.

SALABA, Miroslav, inz.

Mixing of electric analogue signals. Automatizace 6
no.2:52-53 F '63.

SALABA, Miroslav, inz.

Photoelectric measurement by the zero method with electric compensation. Automatizace 6 no.7:182 JI '63.

SAIABANOV, Mikhail Dmitriyevich; DEMINA, V.N., redaktor; CHUVANOV, M.I.,
tekhnicheskiiy redaktor

[Tables for the calculation of wages paid by the hour, day, and week]
Tablitsy rascheta zarabotnoi platy; pri povremennoi sisteme oplaty
truda. Izd. 7-e, perer. Moskva, 1956. 30 p. (MIRA 9:10)
(Wages--Tables and ready-reckoners)